

## Claims

1        1.    A method for producing a secure subspace for a  
2 transaction, said method comprising:

3                from an operating system task, attaching a subtask  
4 that will restrict application addressing; and

5                wherein said attaching includes defining a  
6 subspace address environment as home space within a  
7 dispatchable unit access list (DU-AL) associated with  
8 said subtask.

1        2.    The method of claim 1, wherein said subtask  
2 comprises a first subtask, said subspace comprises a first  
3 subspace and a first application runs under said first  
4 subtask, and wherein said method further comprises repeating  
5 said attaching to define a second subtask having a second  
6 subspace address environment as home space within a DU-AL  
7 associated with said second subtask, wherein a second  
8 application runs under said second subtask.

1        3.    The method of claim 2, wherein said first subspace  
2 is isolated from said second application and said second  
3 subspace is isolated from said first application  
4 notwithstanding execution of said first application or said  
5 second application in address register addressing mode.

1        4.    The method of claim 2, wherein said operating  
2 system task and said first subtask share said first  
3 subspace, and said operating system task and said second  
4 subtask share said second subspace.

1        5. The method of claim 2, further comprising  
2 repeating said subtask attaching for n additional subtasks,  
3 each subtask of said n additional subtasks having a  
4 different subspace address environment as home space within  
5 its associated DU-AL, wherein each subspace of said first,  
6 second and n additional subtasks is isolated from an  
7 application running under any other subtask of said first,  
8 second and n additional subtasks.

1        6. The method of claim 5, wherein each subspace  
2 address environment of said first, second and n additional  
3 subtasks comprises a different subspace of an address  
4 environment of said operating system task.

1        7. The method of claim 1, further comprising prior to  
2 said attaching:

3                creating said subspace;

4                adding said subspace to a DU-AL associated with  
5 said operating system task;

6                assigning a range of storage that an application  
7 running in the subspace can access; and

8                performing a branch in subspace group (BSG) to  
9 make the subspace the active addressing environment.

1        8. The method of claim 7, wherein said performing the  
2 BSG comprises employing a BSG instruction to specify an  
3 access list entry (ALET) in the DU-AL associated with said  
4 operating system task.

1        9. The method of claim 1, wherein said subtask  
2 comprises a first subtask and a first application runs under  
3 said first subtask and wherein said method further comprises  
4 creating a second subtask from said first subtask, said  
5 creating comprising from said first subtask, attaching said  
6 second subtask thereto, said second subtask also having said  
7 subspace address environment as home space within a DU-AL  
8 associated therewith, wherein said subspace is shared by  
9 said operating system task, said first subtask and said  
10 second subtask.

1        10. The method of claim 9, wherein said subspace  
2 comprises a first subspace, and said method further  
3 comprises repeating said attaching from said operating  
4 system task to define a third subtask having a second  
5 subspace address environment as home space within a DU-AL  
6 associated with said third subtask, wherein a second  
7 application runs under said third subtask, and wherein said  
8 first application and said second application are unable to  
9 access each other's address environment notwithstanding  
10 execution thereof in address register addressing mode.

1        11. At least one program storage device readable by a  
2 machine, tangibly embodying at least one program of  
3 instructions executable by the machine to perform a method  
4 for producing a secure subspace for a transaction, said  
5 method comprising:

6                from an operating system task, attaching a subtask  
7                that will restrict application addressing; and

8                wherein said attaching includes defining a  
9                subspace address environment as home space within a  
10               dispatchable unit access list (DU-AL) associated with  
11               said subtask.

1        12. The at least one program storage device of claim  
2 11, wherein said subtask comprises a first subtask, said  
3 subspace comprises a first subspace and a first application  
4 runs under said first subtask, and wherein said method  
5 further comprises repeating said attaching to define a  
6 second subtask having a second subspace address environment  
7 as home space within a DU-AL associated with said second  
8 subtask, wherein a second application runs under said second  
9 subtask.

1        13. The at least one program storage device of claim  
2 12, wherein said first subspace is isolated from said second  
3 application and said second subspace is isolated from said  
4 first application notwithstanding execution of said first  
5 application or said second application in address register  
6 addressing mode.

1        14. The at least one program storage device of claim  
2 12, wherein said operating system task and said first  
3 subtask share said first subspace, and said operating system  
4 task and said second subtask share said second subspace.

1        15. The at least one program storage device of claim  
2 12, further comprising repeating said subtask attaching for  
3 n additional subtasks, each subtask of said n additional  
4 subtasks having a different subspace address environment as  
5 home space within its associated DU-AL, wherein each  
6 subspace of said first, second and n additional subtasks is  
7 isolated from an application running under any other subtask  
8 of said first, second and n additional subtasks.

1        16. The at least one program storage device of claim  
2 15, wherein each subspace address environment of said first,  
3 second and n additional subtasks comprises a different  
4 subspace of an address environment of said operating system  
5 task.

1        17. The at least one program storage device of claim  
2 11, further comprising prior to said attaching:

3                creating said subspace;

4                adding said subspace to a DU-AL associated with  
5 said operating system task;

6                assigning a range of storage that an application  
7 running in the subspace can access; and

8                performing a branch in subspace group (BSG) to  
9 make the subspace the active addressing environment.

1        18. The at least one program storage device of claim  
2 17, wherein said performing the BSG comprises employing a  
3 BSG instruction to specify an access list entry (ALET) in  
4 the DU-AL associated with said operating system task.

1        19. The at least one program storage device of claim  
2 11, wherein said subtask comprises a first subtask and a  
3 first application runs under said first subtask and wherein  
4 said method further comprises creating a second subtask from  
5 said first subtask, said creating comprising from said first  
6 subtask, attaching said second subtask thereto, said second  
7 subtask also having said subspace address environment as  
8 home space within a DU-AL associated therewith, wherein said  
9 subspace is shared by said operating system task, said first  
10 subtask and said second subtask.

1        20. The at least one program storage device of claim  
2 19, wherein said subspace comprises a first subspace, and  
3 said method further comprises repeating said attaching from  
4 said operating system task to define a third subtask having  
5 a second subspace address environment as home space within a  
6 DU-AL associated with said third subtask, wherein a second  
7 application runs under said third subtask, and wherein said  
8 first application and said second application are unable to  
9 access each other's address environment notwithstanding  
10 execution thereof in address register addressing mode.

1        21. A system for producing a secure subspace for a  
2 transaction, said system comprising:

3                means for attaching, from an operating system  
4 task, a subtask that will restrict application  
5 addressing; and

6                wherein said means for attaching includes means  
7 for defining a subspace address environment as home  
8 space within a dispatchable unit access list (DU-AL)  
9 associated with said subtask.

1        22. The system of claim 21, wherein said subtask  
2 comprises a first subtask, said subspace comprises a first  
3 subspace and a first application runs under said first  
4 subtask, and wherein said system further comprises means for  
5 repeating said attaching to define a second subtask having a  
6 second subspace address environment as home space within a  
7 DU-AL associated with said second subtask, wherein a second  
8 application runs under said second subtask.

1        23. The system of claim 22, wherein said first  
2 subspace is isolated from said second application and said  
3 second subspace is isolated from said first application  
4 notwithstanding execution of said first application or said  
5 second application in address register addressing mode.

1        24. The system of claim 22, wherein said operating  
2 system task and said first subtask share said first  
3 subspace, and said operating system task and said second  
4 subtask share said second subspace.

1        25. The system of claim 22, further comprising means  
2 for repeating said subtask attaching for n additional  
3 subtasks, each subtask of said n additional subtasks having  
4 a different subspace address environment as home space  
5 within its associated DU-AL, wherein each subspace of said  
6 first, second and n additional subtasks is isolated from an  
7 application running under any other subtask of said first,  
8 second and n additional subtasks.

1        26. The system of claim 25, wherein each subspace  
2 address environment of said first, second and n additional  
3 subtasks comprises a different subspace of an address  
4 environment of said operating system task.

1        27. The system of claim 21, further comprising prior  
2 to said means for attaching:

3                means for creating said subspace;

4                means for adding said subspace to a DU-AL  
5 associated with said operating system task;

6                means for assigning a range of storage that an  
7 application running in the subspace can access; and

8                means for performing a branch in subspace group  
9 (BSG) to make the subspace the active addressing  
10 environment.

1        28. The system of claim 27, wherein said means for  
2 performing the BSG comprises means for employing a BSG  
3 instruction to specify an access list entry (ALET) in the  
4 DU-AL associated with said operating system task.



1        29. The system of claim 21, wherein said subtask  
2 comprises a first subtask and a first application runs under  
3 said first subtask and wherein said system further comprises  
4 means for creating a second subtask from said first subtask,  
5 said means for creating comprising means for attaching said  
6 second subtask to said first subtask, said second subtask  
7 also having said subspace address environment as home space  
8 within a DU-AL associated therewith, wherein said subspace  
9 is shared by said operating system task, said first subtask  
10 and said second subtask.

1        30. The system of claim 29, wherein said subspace  
2 comprises a first subspace, and said system further  
3 comprises means for repeating said means for attaching from  
4 said operating system task to define a third subtask having  
5 a second subspace address environment as home space within a  
6 DU-AL associated with said third subtask, wherein a second  
7 application runs under said third subtask, and wherein said  
8 first application and said second application are unable to  
9 access each other's address environment notwithstanding  
10 execution thereof in address register addressing mode.

1           31. A system for producing a secure subspace for a  
2 transaction, said system comprising:

3           an operating system transaction manager adapted to  
4 attach a subtask to an operating system task, wherein  
5 said subtask restricts application addressing; and

6           wherein said attach includes said operating system  
7 transaction manager being adapted to define a subspace  
8 address environment as home space within a dispatchable  
9 unit access list (DU-AL) associated with said subtask.

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